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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,970	06/29/2001	Soon Sung Yoo	8733.453.00	6132

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EXAMINER	
KIELIN, ERIK J	

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	09/893,970	YOO ET AL.	
	Examiner	Art Unit	
	Erik Kielin	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 18 March 2005 and 17 May 2005 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 21-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 21 requires the first and second compensating layer widths to be "substantially the same as" the width of the main and dummy seals, respectively. The specification makes no mention of the width and the drawings show the widths of the compensating layers to be wider than that of the seals. Accordingly, this is new matter. In this regard, Applicant argues in the

Response filed 17 May 2005 that support for the above limitation can be found in the specification at page 9, lines 1-3. The specification at this location makes no mention, explicitly or implicitly, of the width of the compensating layer relative to that of the dummy seal.

The remaining claims are rejected for depending from the above rejected claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims **1**-3, 5 and **21**-23 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,239,855 B1 (**Nakahara** et al.).

Regarding claims 1 and 21, **Nakahara** discloses a liquid crystal display device (title), comprising:

a first substrate **21** (Fig. 2);

a main seal **14** (called "injection seal" col. 9, line 20) on the first substrate and defining a liquid crystal injection area **14a**;

a first compensating layer (called a "functional film in an inner area within the injection seals" col. 4, lines 57-62) disposed between the first substrate and the main seal (i.e. "under" the seal), wherein the first compensating layer has "substantially the same width as the main seal" as shown in Fig. 1, and provides a step upon which the main seal is raised;

a plurality of dummy seals **22** (Figs. 2 and 11, or alternatively **42** in Fig. 7 or **62** in Fig. 21) on the first substrate **21** and external to the liquid crystal injection area; and

a second compensating layer (called a "functional film which is within and outer area outside the liquid crystal injection area;" col. 4, lines 57-62) disposed between the first substrate and the plurality of dummy seals (i.e. "under" the dummy seals), the second compensating layer (1) having substantially a same structure as the first step coverage-compensating layer --because the functional film is the same everywhere it is deposited on the substrate-- and (2) having "substantially the same width as the dummy seal" as shown in Fig. 1, and (3) providing a step upon which the dummy seals are raised; (col. 4, lines 57-62 --especially lines 60-62). (See also col. 5, lines 59-64; col. 6, lines 51-59; col. 6, line 66 to col. 7, line 4; col. 9, lines 20-27; paragraph bridging cols. 9-10 --especially col. 10, lines 8-17.)

Nakahara states in pertinent part,

> "Functional films (thin films) other than the color filter may also be formed on the substrate. Any influence of the provided functional film on the cell gap can be avoided by **forming the dummy seal only on a portion of the functional film which is within an outer area outside the injection seals**." (See col. 5, lines 59-64; emphasis added.)
>
> "In a preferred embodiment, a functional film is provided on at least one of the pair of substrates. More preferably, the dummy seal is formed only on a portion of the functional film which is within an outer area outside the injection seals, and **the thickness of the functional film provided in the outer area is substantially the same as that of the functional film in an inner area within the injection seals**. Thus, it is possible to **provide a uniform cell gap regardless of the thickness of the functional film**. Preferably, the functional film comprises a color filter. The color filter has a thickness of about 1 to 2 μm, which is greater than those of other functional films, thereby providing an even more uniform cell gap." (See col. 6, lines 52-62; emphasis added.)

Accordingly, **Nakahara** expressly teaches (1) the first and second compensating layers, and (2) that the compensating layers are substantially the same widths as the main seal and the dummy seal because the step-shaped coverage compensating layer is only that portion of the "functional film" on which the seal is formed. Moreover, Fig. 2 in **Nakahara** shows that the dummy seal **22** runs the length and width of the substrate. Since Nakahara states that the functional films (i.e. the step-shaped coverage compensating layers) are formed everywhere the dummy seals are formed, it is seen to be implicit in **Nakahara** that the widths of the compensating layers and the dummy seals are "substantially the same width" because both are formed the same length and width of the substrate as shown in Fig. 2 of **Nakahara**. It has been held that "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968) See also *In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976).

Regarding claims 2 and 22, the main seal **14** is provided with a liquid crystal injection hole **14a** through which a liquid crystal can be injected.

Regarding claims 3 and 23, the main seal **14** and the dummy seals **22** have a same thickness (Fig. 11).

Regarding claims 5 and 25, a top of the main seal **14** and tops of the dummy seals **22** are a same distance from the first substrate (Fig. 11).

6. Claims 6 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by **Nakahara** considered with Applicant's admissions of record.

Nakahara teaches that the LCD may be a TFT-driven LCD (col. 15, lines 37-49). Accordingly, it is seen to be inherent that the TFT-driven LCD of Nakahara has a gate metal pattern on the substrate forming a gate line and a gate electrode; and a gate-insulating layer covering the gate metal pattern because Applicant teaches that TFT-driven LCDs have these features. (See instant specification pp. 2-4.)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 4, 7, 8 and 24, 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nakahara**.

Regarding claims 4 and 24, the prior art of **Nakahara**, as explained above, discloses each of the claimed features except for providing the thickness of the first coverage compensating layer ("functional film") or specifically that the thickness of about 6500 Å.

It would have been obvious for one of ordinary skill in the art, at the time of the invention to make the first coverage compensating layer thickness about 6500 Å in order to provide a uniform cell gap, in line with the teaching in **Nakahara**.

Moreover, the thickness is *prima facie* obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. See *In re Woodruff*, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also *In re Huang*, 40 USPQ2d 1685, 1688(Fed. Cir. 1996)(claimed

ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also *In re Boesch*, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill of art) and *In re Aller*, 105 USPQ 233 (CCPA 1955) (selection of optimum ranges within prior art general conditions is obvious).

Regarding claims 7 and 27, the prior art of **Nakahara**, as explained above, discloses each of the claimed features except for stating that the first and second compensating layers include the gate metal pattern and the gate-insulating layer.

However, **Nakahara** teaches that the functional film may be any film performing a function --hence the term "functional film"-- and has a thickness that may affect the height difference between the main (injection) seal (paragraph bridging cols. 9-10). **Nakahara** also teaches that the dummy seals and that such films include, *inter alia*, "ITO, an inorganic film, an insulative film, an alignment film, a protective layer, or the like" (col. 10, lines 14-16).

It would have been obvious for one of ordinary skill in the art, at the time of the invention to make the first and second step coverage-compensating layers include the gate metal pattern and the gate-insulating layer in **Nakahara** because **Nakahara** teaches that the film should be functional, such as a gate metal pattern and a gate-insulating film, and that any thin film having a thickness should be included underneath **both** the main (injection) seal and the dummy seal in order to maintain uniform cell gap.

Regarding claims 8 and 28, the prior art of **Nakahara**, as explained above, discloses each of the claimed features except for stating that the main seal and the dummy seals are formed on the gate-insulating layer.

As noted above, **Nakahara** teaches that the main (injection) seal and the dummy seal should be formed on the same step coverage-compensating film (i.e. "functional film") in order to maintain uniform cell gap (col. 5, lines 59-64; col. 6, lines 52-59; paragraph bridging cols. 9-10).

It would have been obvious for one of ordinary skill in the art, at the time of the invention to form the main and dummy seals of **Nakahara** on the gate insulating layer because **Nakahara** teaches that the functional film in both the main seal and dummy seal areas is the same material layer and the same thickness in order to prevent height differences between the main and dummy seals, thereby maintaining uniform liquid crystal cell gaps.

9. Claims 7, 8 and 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nakahara** in view of JP 08-278510 A (**Hiraki** et al.).

If it is thought, *arguendo*, that **Nakahara** does not at least implicitly teach that the first and second step coverage-compensating layers include the gate metal pattern and the gate insulating layer (claims 7 and 27) or just the gate insulating layer (claims 8 and 28), then this may be a difference.

Hiraki teaches that a step-shaped coverage compensating layer **56** used to ensure uniform parallel spacing between substrates of an LCD includes a gate metal pattern (the gate

line **34**) and gate dielectric layer **46** (paragraph [0034] and Fig. 1; machine language translation provided.)

It would have been obvious for one of ordinary skill in the art, at the time of the invention to use the gate dielectric and gate insulating film as the functional films in Nakahara because **Nakahara suggests** using **functional** films (i.e. films that have a "function" in the LCD, such as gate lines and gate insulating films) for the height compensation film to adjust the seal height and because **Hiraki** teaches **a specific example** of the functional films to be the gate metal pattern and the gate insulating layer used to adjust seal height.

Response to Arguments

10. Applicant's arguments filed 17 May 2005 have been fully considered but they are not persuasive.

Applicant argues with respect to the rejection of claims 21-28 under 35 USC 112(1), that the compensating layers are "substantially the same width as the seals" even though admitting that the compensating layers are shown to be **wider** than seals. Examiner respectfully submits that --based upon Applicant's own analysis then-- the terminology "substantially the same width" would also include that the compensating layers could be slightly narrower than that seals. But the range "slightly narrower" falls **outside** of the metes and bounds of the original disclosure while falling under "substantially the same width." Nowhere in the four corners of the disclosure is there support for the compensating layers being slightly narrower than the seals. Ergo, "substantially the same width" extends beyond the scope of the original claims. In this regard, MPEP 2163.05 (III) states,

> "With respect to changing numerical range limitations, **the analysis must take into account which ranges one skilled in the art would consider inherently supported by the discussion in the original disclosure**. In the decision in *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976), the ranges described in the original specification included a range of "25%-60%" and specific examples of "36%" and "50%." A corresponding new claim limitation to "at least 35%" did not meet the description requirement because the phrase "at least" had no upper limit and caused the claim to read literally on embodiments outside the "25% to 60%" range, however a limitation to "between 35% and 60%" did meet the description requirement. See also *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1328, 56 USPQ2d 1481, 1487 (Fed. Cir. 2000) ("the specification does not clearly disclose to the skilled artisan that the inventors * * * considered the [] ratio to be part of their invention * * *. There is therefore no force to Purdue's argument that the written description requirement was satisfied because the disclosure revealed a broad invention from which the [later-filed] claims carved out a patentable portion"). Compare *Union Oil of Cal. v. Atlantic Richfield Co.*, 208 F.3d 989, 997, 54 USPQ2d 1227, 1232-33 (Fed. Cir. 2000) (Description in terms of ranges of chemical properties which work in combination with ranges of other chemical properties to produce an automotive gasoline that reduces emissions was found to provide an adequate written description even though the exact chemical components of each combination were not disclosed and the specification did not disclose any distinct embodiments corresponding to any claim at issue. "[T]he Patent Act and this court's case law require only sufficient description to show one of skill in the...art that the inventor possessed the claimed invention at the time of filing.")"

In this case, one of ordinary skill would **not** be informed by the original disclosure that the compensating layers could be slightly **narrower** than the seals and still serve their function properly, or that Applicant was in possession of this limitation. Verily, it begs the question as to why Applicant never mentioned this limitation if it had been considered part of the invention. For these reasons that the compensating layers are "substantially the same width" as the seals is new matter. Support only exists for compensating layers that are wider than the seals.

Applicant argues that support for the "substantially the same width" limitation can be found in the specification at page 9, lines 1-3. The specification at this location makes no

mention, explicitly or implicitly, of the width of the compensating layer relative to that of the dummy seal.

Applicant argues on p. 8, first full paragraph that Examiner has misinterpreted Nakahara. Examiner has not. Examiner defers to the rejection of the claims above for explanation.

Applicant argues on p. 8, third full paragraph that "the functional film of Nakahara is not equivalent to the claimed compensating layer merely because it is under the dummy seals." This argument was never forwarded by Examiner. The excerpt from Nakahara in the rejection above (section 5) very explicitly discloses the instantly claimed compensating layer. The functional films are films functioning in the device, i.e. the gate electrode and the gate insulating layer. Nakahara explicitly indicates that the purpose of providing these films under the dummy seals is to equalize the seal height at all locations. Accordingly, there is nothing novel in the present claims. Moreover, the first and second compensating layers are distinguished only by their location with respect to the seals. The structure is necessarily the same everywhere in order that equal elevation of the dummy and main seals is maintained, as disclosed in Nakahara.

Applicant argues that Nakahara does not disclose the combination of features of claim 21. Examiner respectfully disagrees for reasons recited in the claims and incorporated herein. Each of the features Applicant alleges is absent is --in fact-- present in Nakahara. Moreover, Applicant attempts to rely on a feature for which there fails to exist support in the instant specification.

The remaining arguments are premised upon the alleged failure of Nakahara to disclose the features of claims 1 and 21. Examiner respectfully disagrees for reasons of record.

Conclusion

11. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik Kielin whose telephone number is 571-272-1693. The examiner can normally be reached from 9:00 - 19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erik Kielin
Primary Examiner
July 20, 2005